# THE IMPACT OF PRICE LEVEL CHANGES ON FINANCIAL STATEMENTS

by

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# INTRODUCTION

## The Problem in Accounting Today

Accounting is a managerial tool for business management. The accountant keeps records of business transactions, summarizes the business transactions in a significant manner in terms of money, and interprets the operating results to the management. Management uses the data to make decisions regarding prices, wages, dividends, taxes, and manufacturing policy.

The dollar is the accountant's yardstick, and the value of the dollar is assumed to be stable. Under this assumption, accounting reports are reliable and useful. However, through the past twenty years the movement of the price level has been generally upward, and as a result the purchasing power of the dollar has been cut in half.[1] This condition poses a major problem in accounting. Conventional balance sheets and income statements have lost some of the economic significance which they had during periods of monetary stability. Management cannot make sound decisions based on unreliable data.

As a result of inflation during the past two decades, the discrepancies between the financial and the economic--the monetary and the real--results of business operation have become obvious. A widespread interest in the problem has developed among the members of both the public accounting and

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[1] William A. Paton, and William A. Paton, Jr., Corporation Accounts and Statements. New York: The Macmillan Company, 1955, p. 536.

industrial accounting professions. They have devoted considerable time and attention to this subject and the possible avenues of solution. The accountants attempt to develop supplementary statements which show economic results and leave to the conventional statements (in substantially their present form) the task of reporting results in monetary terms only.

Comments Supporting Conventional Accounting

The generally accepted accounting principles have been recognized by the accounting profession for a long time. Under the prevailing concepts and procedures these principles have worked well over the years, and the conventional financial statements are widely used and respected. The idea of price adjustments is a clear-cut deviation from the generally accepted accounting concept of incurred cost.

There is no recognition of the change in the value of the dollar in the eyes of the law. Many agreements and contracts are established with the dollar as the legal measuring unit. Accountants have the problem of making significant conversions without any recognition of change in the value of the dollar by the law.

The introduction of new concepts or methods in the financial statements would confuse most stockholders and would not be understood by readers of the financial statements. Further, there are serious technical difficulties in making adjustments to a current cost basis.

Comments Supporting Price Level Adjustment

The assumption that the value of the dollar is stable is false. The purchasing power of the dollar has varied through the last two decades. Money is worth only what it will buy; it has no intrinsic value. It represents general purchasing power in a storable form. When dollars of differing dimensions are added and subtracted without regard to such dissimilarity, the resulting net income amounts and account balances are subject to misunderstanding. It is obvious that it would be improper to add dollars and francs, yards and meters, long tons and short tons.

The matching of revenue and expense is one of the most important parts of the entire accounting process. The revenue is automatically stated in current dollars and logic requires that expenses matched against such revenue should be stated in current costs. Under conventional accounting procedures, some expenses are stated in current costs, while others are stated in old costs. This is illogical from the standpoint of matching current revenue with current expense. The expense stated in old costs should be adjusted to a current cost basis.

Under conventional accounting procedures, as mentioned above, some expenses are stated in old costs. It is obvious that during inflationary periods real net income will be overstated because of failure to adjust costs to a common-dollar basis. The result will almost surely be a tendency toward an unduly liberal dividend policy--possibly a distribution of

capital under the guise of earnings; and income taxes will be inequitably high in many cases and often will be paid out of capital.

An especially misleading presentation of accounting data is that of comparative income and position statements. Typically, a ten-year comparison of financial highlights is presented in published reports. Under current practice, each year's data are expressed in part in dollars current at that time and in part in past-period dollars. However the reader of such a report almost unconsciously thinks in terms of today's dollars, and makes decisions based on the unreliable data. There is no doubt that comparative data must be expressed in terms of a common denominator if they are not to be misleading. The comparative data will be truly comparable after the adjustment.

Possible Solutions to Meet the Problem

There are two approaches to this current problem in accounting. One abandons the historical cost for asset and expense accounts and adopts instead current replacement cost or the equivalent in terms of service rendered by the assets. This is accomplished by the use of appraisals or specific index numbers. The other retains the historical cost, but measures these costs on a current dollar basis to conform to the general purchasing power changes of the dollar. This approach is accomplished by the application of a general index

of prices. The latter method has been considered by most accountants as a more reasonable approach than the first one, because it keeps a record of the historical cost of the assets.

As far as the price index is concerned, the American Accounting Association recommends the Consumers' Price Index as the best one for the purpose of price level adjustment. The reasons are as follows:[1]

(1) It is a widely used and generally accepted index of the change in the general price level and a reciprocal in the value of the dollar.

(2) It agrees rather closely with the implicit index developed by the computation of gross national product in uniform prices.

(3) It is less affected by technological changes than are some of the more specialized index numbers.

(4) It fluctuates less than any other currently available general index and therefore produces smaller and less erratic adjustments for price level changes.

## THE EFFECTS OF PRICE LEVEL CHANGES

### The Effects of Inflation on Current Monetary Accounts

In general the classification of current monetary accounts includes all current assets other than inventories and all

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[1]Ralph Coughenour Jones, Price Level Changes and Financial Statements, Case Studies of Four Companies. American Accounting Association, 1955, p. 3.

current liabilities. The major examples of current monetary assets are cash on hand and in the bank, accounts and notes receivable, and accrued receivables such as interest and rent. The current monetary liabilities are primarily in the form of accounts and notes payable, wages and salaries payable, and taxes payable. All these assets and liabilities, regardless of when originating, appear in the accounts in current dollars; or, to put it another way, these account balances are continuously and automatically adjusting themselves to current dollars. For example, a bank balance of $500,000 represents a fund of $500,000 current dollars, whatever has been the course of the price level since the money was deposited. Similarly, a liability of $500,000 in the form of accounts payable is simply a claim for the stated number of dollars, without regard to their value at all points from origin to date of payment.

As monetary balances automatically adjust themselves to changing price levels, their real values change along with variations in the value of money. Accordingly, we can properly say that gains and losses on monetary balances are inevitable during periods of inflation. Purchasing power losses occur through holding monetary assets during a period of rising prices. Assume, for example, that a company deposits $500,000 in a bank account when the price level stands at 100 and continues to hold this cash fund during a period in which the index moves to 200. Under these circumstances the company has

lost half of the purchasing power represented by this asset. It now takes $1,000,000 in the current monetary unit to match the purchasing power represented by the original deposits, but the company holds only $500,000; hence an actual loss of $500,000 expressed in the current unit has been suffered.

These losses on current monetary assets are offset by gains on current liabilities during a period of inflation. Assume, a company has accounts payable or other current liabilities of $100,000 at the time the index of prices stands at 100 and the index later moves to 150. The company will have a gain of $50,000 from current liabilities. The liabilities of $100,000 represented initially a debt equal to $150,000 expressed in current dollars, but the actual amount now payable is only $100,000 giving a gain of $50,000. The cash loss of $500,000 is partially offset by the gain of $50,000, thus the net loss is $450,000.

The purchasing power loss on current funds is not recognized under prevailing accounting procedures. However, one must bear in mind the fact that the loss is a very real and definite impairment of capital.

Effects of Inflation on Noncurrent Monetary Accounts

Non-current monetary assets are relatively rare and not very important as proportion of total assets in industrial companies. Long-term receivables and investments in bonds and notes of affiliated companies are sometimes encountered.

Moreover, government and other marketable bonds are often included in funds being built up for special purposes, and in such situations it may be necessary to regard the investment as a long-term committment in dollars.

As a result of inflation, the value of long-term receivables or investments is decreased. This is a loss for the company that holds the assets. For example, a company loaned $100,000 to its affiliate when the price index was 100, and later the index moved to 150. With these conditions, the company suffered a loss of $50,000 from the loan measured in current dollars. The loan adjusted to the current level should be $100,000 x 150/100 = $150,000. Actually the loan is still $100,000, so the loss is $50,000.

Long-term liabilities, in general, are more important than long-term receivables. Many companies in most business fields have long-term liabilities outstanding, usually in the form of bonds. In a period of rising prices the debtor will benefit from such non-current payables. A company, for example, issues 20-year callable bonds with a face value of $1,000,000, receiving cash from investors. The price index at date of issue stands at 100. After ten years the price index has moved up to 150. Under these circumstances the company will actually have less obligation than the money received from investors at date of issue. The bonded debt expressed in current dollars will be $1,500,000. If the company wants to retire the bonds, the payment is $1,000,000, not $1,500,000, so

the company will have a gain of $500,000.

Inventory Cost

At the inception of the Federal income tax laws in 1913, only actual inventory cost was accepted as a basis for income determination. Later, in the early twenties, the lower of cost or market was recognized as a method of pricing inventories. The use of the base stock method was prohibited by regulation. However, prices may rise in the market, and inventory cost is a major factor in the determination of income for a business. Failing to make allowance for the effects of inflation in this area caused significant errors in the calculation of income. Taxes were being imposed on unrealized profits resulting from increased inventory values. Many business men and economists have recognized this situation, and are dissatisfied with the use of current costs for pricing inventories.

In 1938, Congress recognized this inequity and passed a law which permitted limited use of the last-in-first-out method of valuing inventories. This method permitted the portion of the ending inventory which equals the beginning quantity to be valued at the beginning inventory price level. In 1939, Congress decided that, if the principle was sound for a limited number of companies, it was sound for all business enterprises.

Over the past twenty-two years, the use of LIFO for inventory pricing has become prevalent throughout industry.[1]

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[1]Herbert T. McAnly, "LIFO for Both Inventory and Plant Assets," N.A.A. Bulletin, August, 1961, Section 1, p. 5.

Under the LIFO method, revenue is charged with the most recently recorded cost. Although this does not result in matching revenues with actual cost converted into current dollars, it is a move in the direction of using current cost in income determination. Conceptually this procedure varies widely from that involved in adjusting cost for purchasing power changes, since LIFO introduces into income calculation price movements in a specific commodity acquired prior to the statement date. Common dollar accounting adjusts all acquisition prices to the basis of money value on the statement date. During recent years, income results under these two methods apparently would have been similar, but the concepts of net income underlying them are poles apart.

Under a common dollar approach, cost of sales is restated by the application of an appropriate conversion factor and that portion of cost which is unexpired and carried to the position statement is also converted to current dollars. When the inflation is serious, the LIFO approach will lose some significance in matching current revenues with current costs.

The most significant difference between common dollar accounting techniques and LIFO as it is currently employed is in the treatment of residual inventories in the position statement. Under LIFO this balance is composed of the oldest costs incurred for this class of asset expressed in dollars that were current at the time the cost was incurred. Obviously, the introduction of these extremely old costs into the asset totals causes a

serious understatement of invested capital as well as total assets. In an effort to eliminate fictitious inventory gains from the income account, users of LIFO assign opening inventory prices to the closing inventory. Applying current prices to the opening inventory would clearly give more meaningful results, but this would generally be regarded as a departure from the cost concept.

Inflation and Plant Cost and Depreciation

The problems encountered in connection with depreciable assets, especially when investment in such assets is large, are difficult and important. Because the lives of some types of depreciable assets are extremely long, the discrepancy between original cost and cost adjusted for price level change is substantial. Similarly, there is a wide variation between the depreciation charges made to income on a conventional basis and that which results when depreciation charges are converted for purchasing power changes.

The effect of common-dollar adjustments on a given enterprise will vary with the relationship of depreciation charges to total expenses and income. If depreciation is a major factor in the company's cost of production, the effect of conversion upon reported earnings may be very substantial. Obviously, in a public utility which has large investments in a long-lived plant, common-dollar adjustments, if applied, might result in significant adjustments to reported income.

Overstatement of Earnings and Earning Rates

The most serious general weakness of corporate reporting in recent years is the overstatement of earnings and earning rates. Such overstatement results from the fact that, although revenues are stated in current year's dollars, some of the deductions are expressed in dollars of earlier years--dollars having substantially greater purchasing power than the current monetary unit. For example, a company purchased a government bond for $75,000 in 1940, which was redeemed in 1955 for $100,000. Under the unconverted income statement, it will report the net income as $25,000, ignoring taxes and other possible expenses. However, the result is actually a loss instead of a gain if the change in purchasing power of the dollar is taken into account. Because of price-level changes, $100,000 in 1955 would purchase about the same amount of commodities and services as $50,000 would have purchased in 1940; thus, there has been a loss of $25,000 in 1940 dollars or one-third of the investment. Or, it could be said that the investment of $75,000 in 1940 is the equivalent of an investment of $150,000 in 1955 dollars, with a resulting loss of $50,000.

That reported corporate earnings have been materially overstated in almost every year since the early '40s has been abundantly demonstrated by the careful estimates of several outstanding economic statisticians. In some years the overstatement has amounted to 50 per cent of the reported income

and the grand total of the overstatement from 1943 to 1955 probably exceeds $50 billion, when expressed in current dollars.[1]

Overstatement of earnings is likely to lead to unsound financial decisions. Without a doubt, many corporate managements in recent years have been pursuing a non-conservative dividend policy without realizing it, and in some companies a part of their dividends was paid out of capital. During 1947 to 1952, the New York Telephone Company dividend payment was only 98.8 per cent of historical dollar earnings, but it amounted to 169 per cent of adjusted net income.[2] Another result of overstatement of earnings is understatement of the burden of income taxes. It is obvious that both business and personal income taxes are uncomfortably high. It is not so generally understood, however, that the real tax burden is substantially heavier than statutory rates would indicate. If, for example, a corporation pays taxes of $400,000 on reported earnings before taxes of $800,000, and a computation in terms of uniform dollars show that actual earnings before taxes are only $500,000, it is evident that the real rate is 80 per cent rather than 50 per cent.

Rates of return as recently computed have been much higher than the real earnings rates, because the computation

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[1]William A. Paton, and William A. Paton, Jr., Corporation Accounts and Statements. New York: The Macmillan Company, 1955, p. 540.

[2]Ralph C. Jones, Price Level Changes and Financial Statements, Case Studies of Four Companies. American Accounting Association, 1955, p. 47.

did not take into consideration the change in the value of the dollar. There is a compounding of error at this point: overstated earnings are applied to an understated stockholders' equity. When expenses and investment as well as revenues of the New York Telephone Company are measured and expressed in uniform dollar, the average rate of return for the seven years, 1946-1952 is found to be only 3 per cent. However, the book rate of return is 6 per cent on book investment.[1] It is clear that earnings rates computed in terms of unconverted accounting data are seriously distorted.

## PRICE-LEVEL DEPRECIATION

### Nature of Depreciation

The nature of depreciation from an accounting point of view is not a method of evaluation of property, nor a device for providing funds for replacement of depreciated property; rather, it is a method of allocating the original cost of property to operating periods. One writer has stated that the purpose of depreciation accounting is merely to distribute the cost as a charge to operations over the useful life of the asset in a systematic and rational manner.[2]

During the past twenty years, the movement of the price level has been generally upward, and as a result the purchasing

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[1]Ralph C. Jones, Price Level Changes and Financial Statements, Case Studies of Four Companies. American Accounting Association, 1955, p. 18.

[2]Carman G. Blough, "Accounting and Auditing Problem," The Journal of Accountancy, July, 1958, p. 79.

power of the dollar has been cut in half. This condition poses a major problem in depreciation accounting. Depreciated plants are generally composed principally of long-lived assets. The amount of dollars expected to acquire these assets was much less than the amount of dollars that would be required to acquire the same assets under current price levels. When depreciation is based on the original cost of assets, and charged against current income, net income is overstated, and management cannot maintain the integrity of its investment in long-lived assets. For this reason, there is a new concept of price-level depreciation.

What is price-level depreciation? "Price-level depreciation is a method of allocating the cost of fixed assets to the appropriate periods by charging each period with a portion of the assets, adjusted for increases in the value of the dollar."[1] It should be noted that this definition of price-level depreciation takes into consideration only changes in the purchasing power of the dollar, and it does not consider the replacement cost of specific assets.

Arguments Advanced for the Current Cost Basis

(1) Historical cost is not useful. Proponents of adjusted depreciation charges have emphasized that historical costs are not useful, that it is current costs which are vital to management in its planning and decision-making. Furthermore, it is

[1]Joen R. H. Gilmour, "The Need for Price-level Depreciation Poses a Challenge to Accounting," N.A.A. Bulletin, July, 1959, Section 1, p. 29.

important to know the effect of fluctuating prices on costs. Advocates of adjustment maintain that current costs, as shown by a purchasing power adjustment, are a more accurate measurement of cost of service capacity utilized than are historical costs.

(2) Historical cost is inequitable for tax purposes. The fact that the higher reported profits are taxed leads to the criticism that measurement of depreciation in terms of historical dollars is inequitable for tax purposes as between owners of fixed assets and owners of financial assets. Proponents of the current cost basis for depreciation have pointed out that a dollar of depreciation is different from other dollars in terms of purchasing power. Cost, they say, should be computed in terms of current purchasing power dollars; otherwise, capital will be taxed. Owners of depreciable assets are said to be taxed on fictitious gains if the historical cost basis is used. Firms, the assets of which are predominantly financial, do not have their taxable income overstated for their revenues and expenses are both stated in current prices.

(3) Historical cost adversely affects maintenance of capital. Another serious charge has been made against the historical cost basis of computing depreciation. Some economists and management groups have been especially concerned with long-range effects and with results that might adversely affect the national economy. One strong argument made for use of adjustments is that they will promote

maintenance of capital. The fictitiously high profits that are said to exist lead the business man to make decisions which eventually deplete the capital of the firm and national productive capacity is imperiled. The firm is misled by high profits, sets prices too low, pays high wages and dividends, and pays taxes on profits that are fictitious.

(4) Historical cost adversely affects the determination of real income. The determination of real income is necessary for intelligent budgeting for capital replacements and the formation of sound decisions as to methods of financing and pricing policies. If depreciation is based on historical cost, the reported net income will be overstated, and current revenues are not matched with current costs. Costs such as maintenance, taxes, and wages are being incurred largely or entirely in current dollars. If net income is to be reported realistically the cost of expiring plant must also be stated in current dollars.

(5) Historical cost adjusted to the current price-level is recognized in many countries. The use of adjusted depreciation charges for tax purposes is a recognized procedure in France, and a number of other countries. American accounting practice, generally in the lead, has lagged badly in this connection. It is true that the inflation process has not yet gone as far here as it has in many countries. However, since the purchasing power of the dollar has fallen 50 per cent since 1940, the problem must be given more consideration.

Under the prevailing tax structure, the position of risk capital has been seriously impaired and the flow of new equity funds--common stock money--cut to a mere trickle. This is a serious situation, especially in view of the current demand for increased production.

Arguments Advanced for the Historical Cost Basis

(1) Depreciation accounting is a process of allocation. One of the major defenses advanced by accountants against the adjustment arguments is that depreciation is a process of allocation and not of valuation. The original acquisition cost is allocated to operating periods under a systematic and rational manner.

(2) Accounting is a recording process. Those who present arguments for historical cost often point out that accounting is concerned with recording facts within the firm and is not concerned with estimates of outside factors, the outside factors being price levels and future replacements. They also say that the current cost of fixed assets is of little importance to the going concern because those assets cannot be disposed of if the firm is to continue in business. If they are sold, the market price would represent merely a liquidation value.

(3) Adjusted depreciation violates the cost concept. It is not in conformity with generally accepted accounting principles. The original cost is the only figure that can be used for depreciation purpose--any other adjustment is

against the cost concept.

(4) Adjustments mean confusion. The confusion resulting from adjustments in the books of accounts, it is said, will make such adjustments too costly. The vast body of common and statutory law and legal precedent predicated on orthodox accounting procedures are cited as are the innumerable contractual and business relationships which recognize the historical cost basis. There is also a forbidding array of regulatory provisions based on the use of historical cost. Many proponents of historical cost consider that the effects of inflation have not been serious enough to offset the confusion that would result from adjustments.

(5) Historical cost is useful. In the basic records of accounting, objectivity is believed to be essential for many of the purposes of accounting. The safe-guarding of assets, the auditing process, and satisfaction of governmental requirements are among these purposes. Estimation, surmise, and prophecy might lead to manipulation of accounting data by management to the detriment of the other interest groups. Federal agencies have insisted on historical cost because of the need for a firm and objective basis for control, regulation, and audit. Adjusted data is said to destroy this firm and objective basis.

(6) The need to adjust depreciation under present conditions is not great. There has not been a sufficient degree of inflation to warrant this step, and it is probable that the

price trend will soon move in the other direction, with a resulting restoration of the value of our monetary unit.

Method of Depreciation Adjustment

In the application of common-dollar adjustments, depreciation charges based on historical costs are adjusted by the use of the Consumer Price Index. Why was a general index chosen rather than a specific index? Since depreciation is not a function of replacement, it is not specifically concerned with making funds available for replacement. Price level depreciation is concerned with the restatement of depreciation charge in terms of current dollars of equal purchasing power. This conversion is made possible by the application of a general index applied against the present fixed assets with regard to the year of their original acquisition. The present depreciation charge is then adjusted proportionately.

Common-dollar depreciation is the product of the depreciation charge computed on a historical cost basis multiplied by a fraction, the numerator of which is the average consumer price index for the current year and the denominator of which is the average consumer price index at the date of acquisition. This fraction, or adjustor, converts the normal depreciation charge to a common-dollar charge equal to the current year's portion of purchasing power expended at acquisition. For example, the M Company acquired a plant unit at a cost of $200,000 at 1950. The estimated service life is 20 years with no salvage value.

Assume the consumer price index number in 1950 was 100, and in 1960 was 200. The normal depreciation charge for 1960 was $200,000/20 = $10,000, and the adjusted depreciation charge was $10,000 x 200/100 = $20,000.

The adjusted depreciation cost is charged to depreciation expense and appears as a single figure in the income statement. The offsetting credit for this depreciation charge is split between two accounts. The amount representing depreciation on original cost is added to the regular allowance for depreciation. The difference between depreciation on original cost and depreciation on current cost is credited to the capital account. When the asset is retired, the loss or gain on retirement will be computed by multiplying the per cent of the estimated life not yet expired by the current cost of the asset at the time of retirement and deducting the net salvage value. The entry for the adjusted depreciation (1960) would be as follows:

| | | |
|---|---|---|
| Depreciation | $20,000 | |
| Allowance for Depreciation-Plant Cost | | $10,000 |
| Capital Adjustment-Absorbed Plant Inflation | | 10,000 |

By this procedure the recorded costs are increased by $10,000, and net earnings are correspondently reduced. The addition to depreciation cost, not derived from plant dollars on the book, is immediately frozen as an element of permanent capital. This simple treatment places depreciation cost on a current basis, and provides for a growing capital account to cover increasing plant cost to the extent recognized in

depreciation charges.

The capital adjustment account should appear in the stockholders' equity section of the balance sheet. It is an adjustment or restatement, in terms of a new level of prices, of the owner's capital investment.

Measuring Cost--Practical Importance of Adjusting Depreciation

In recent years the restriction of depreciation charges to recorded dollar cost, without adjustment, has been widely criticized on the ground that such accounting does not measure actual and effective cost. The importance of depreciation in cost measurement depends, in the first place, upon the extent of the plant assets owned and used by a particular enterprise. To a distributor operating in a rented building and owning no fixed assets other than a small amount of store and office equipment, it would not be sensible to devote very much time and energy to the problem of depreciation accounting. To a manufacturer of heavy machinery, on the other hand, whose activities require a very large investment in plant, depreciation cost may be a substantial factor in cost determination, and hence deserve serious attention. The fact that depreciation is a relatively small fraction of total cost is not the significant point; it is the relationship of the depreciation charge to net income that counts. Assume, for example, the following situation:

| | | |
|---|---|---|
| Revenue | | $55,000 |
| Depreciation | $5,000 | |
| Other costs | 45,000 | 50,000 |
| Net earnings | | $ 5,000 |

Here depreciation is only 10 per cent of total charges but is 100 per cent of computed net earnings. With these conditions a doubling of the depreciation charges to put this cost on a current basis would reduce the apparent earning power to zero.

There is also the departmental aspect of cost measurement to consider. Depreciation cost may be very important in the reckoning of a particular department although of minor importance in other areas of the firm. In comparing departmental costs, too, unadjusted depreciation charges may be misleading with depreciation computed on the conventional dollar-expended basis. A department using equipment bought at relatively low prices may appear to be more efficient than a department loaded with equipment acquired later at much higher prices, although the actual fact may be just the reverse. Unadjusted depreciation charges, in periods of sharply changing prices, are unreliable cost data in all departmental calculations.

It is of interest to note that the concern which uses property owned by others, on an annual rental basis, incurs rent cost in lieu of depreciation. Where the rent cost is subject to periodic change with changing conditions, this means that the cost of operating the plant is on a current basis from year to year. This situation is quite different from that of an enterprise in which depreciation is accrued on

the basis of dollars expended in the past without adjustment. This comparison makes it clear that the cost of using plant is not being correctly measured where depreciation charges are not on a relatively current basis.

## THE ADJUSTMENT OF CONVENTIONAL FINANCIAL STATEMENTS TO UNIFORM DOLLARS

### The Importance of Adjustment of Financial Statements

An increasing number of businesses regularly present partial or complete comparative financial statements covering a considerable number of years. Comparative financial statements for a ten-year period are fairly common. When there have been significant movements in the price level, it is obvious that annual data covering several years lose much of their comparability.

During a time of sustained price movement the data shown in comparative financial statements are expressed in unlike units and will lead to misinterpretation. For example, a company has sales of $1,000,000 in 1960, and ten years ago the sales were $500,000. This implies that sales have doubled in ten years. But if the size of the dollar has changed significantly during the period, the data are misleading. Assuming that prices have increased 50 per cent in ten years, the adjusted sales figure for ten years ago would be $750,000. Thus a different impression will be gained by using the adjusted sales figure.

Conversion of Income Statement

The following comparative income statement of X company will be used to illustrate the technique of index number adjustments:

X Company
Comparative Income Statement
Years ending December 31
(in unconverted book figures)

| | First year | Second year |
|---|---|---|
| Sales | $ 500,000 | $ 600,000 |
| Less: Cost of Goods Sold | $ 400,000 | $ 480,000 |
| Depreciation | 25,000 | 25,000 |
| Other expenses | 30,000 | 35,000 |
| | 455,000 | 540,000 |
| Net Income from Operation | $ 45,000 | $ 60,000 |
| Interest on Bonds | 5,000 | 5,000 |
| Net Income before Income Taxes | $ 40,000 | $ 55,000 |
| Income Taxes | 12,000 | 16,500 |
| Net Income for the Year | $ 28,000 | $ 38,500 |
| Dividends | 15,000 | 23,500 |
| Balance to Retained Earnings | $ 13,000 | $ 15,000 |

Following are supplementary data and assumptions:

(1) Price index beginning of first year, 90; average index for first year, 95; price index end of first year (and beginning of second), 100; average for second year, 105; price index at end of second year 110.
(2) It will be assumed that the sales occurred evenly throughout the two years, and that, therefore, they were made at the average price level or average dollars for the period.
(3) It will be assumed that the first-in, first-out method of inventory pricing has been used, and the purchase of merchandise was made at a uniform rate throughout the two years. Merchandise on hand at the beginning of the first year amounted to $90,000, acquired when the price index stood at 90. Inventory at the end of the second year amounted to $120,000 acquired when the index was 110.

(4) The entire depreciation charge is based on cost of buildings and equipment acquired when the price index stood at 80.
(5) It will be assumed that other expenses were incurred at the average dollar of the period.
(6) It is assumed that interest, taxes, and dividends are accrued or paid in year-end dollars.
(7) All calculations are rounded off to the nearest $100.

The sales figure for the first year is converted by multiplying by 110/95 ($500,000 x 110/95 = $578,900); for the second year, the conversion is made by multiplying by 100/105 ($600,000 x 100/105 = $628,600). The cost of goods sold is computed as shown below:

| | Unconverted Amount | Multiplier | Converted Amount |
|---|---|---|---|
| First year | | | |
| Opening Inventory | $ 90,000 | 110/90 | $ 110,000 |
| Purchase during year | 410,000 | 110/95 | 474,700 |
| | $500,000 | | $ 584,700 |
| Ending Inventory | 100,000 | 110/100 | 110,000 |
| Cost of Goods Sold | $400,000 | | $ 474,000 |
| Second year | | | |
| Opening Inventory | $100,000 | 110/100 | $ 110,000 |
| Purchase during year | 500,000 | 110/105 | 523,800 |
| | $600,000 | | $ 633,800 |
| Ending Inventory | 120,000 | 110/110 | 120,000 |
| Cost of Goods Sold | $480,000 | | $ 513,800 |

Depreciation costs for both years are $25,000 x 100/80 = $34,400. Other expenses for the first year are $30,000 x 110/95 = $34,700, for the second year are $35,000 x 110/105 = $36,700. Interest for the first year is $5,000 x 110/100 = $5,500. Income taxes for the first year are $12,000 x 110/100 = $13,200. Dividends for the first year are $15,000 x 110/100 = $16,500. Interest, taxes, and dividends for the second year are unchanged in accordance with the assumption. The converted comparative income statement is as follows:

X Company
Comparative Income Statement
Years ending December 31
(stated in uniform dollars, the end of second year used as a base)

| | First year | Second year |
|---|---|---|
| Sales | $ 578,900 | $ 628,600 |
| Less: Cost of Goods Sold | $ 474,700 | $ 513,800 |
| Depreciation | 34,400 | 34,400 |
| Other Expenses | 34,700 | 36,700 |
| | 543,800 | 584,900 |
| Net Income from Operations | $ 35,100 | $ 43,700 |
| Interest on Bonds | 5,500 | 5,000 |
| Net Income before Income Taxes | $ 29,600 | $ 38,700 |
| Income Taxes | 13,200 | 16,500 |
| Net Income for the Year | $ 16,400 | $ 22,200 |
| Dividends | 16,500 | 23,500 |
| Reduction of Retained Earnings | ($ 100) | ($1,300) |

In comparing the unconverted data with the converted data, one will get a different impression. The converted data shows that revenues have increased only $49,700 in the second year, although the unconverted figures show an increase of $100,000. Net income for the year shows an increase of $10,500 during the two years in the unconverted data but has increased only $5,800 in the adjusted data. The reported net income is $11,600, about 41 per cent more than the adjusted net income in the first year. In the second year, the reported net income is $16,300--about 42 per cent more than the adjusted net income. Income taxes have taken more than 40 per cent instead of 30 per cent of the net earnings. The adjusted data, moreover, show that in both years the dividends paid are in excess of the net income for the year, and bring about a decrease in the stockholder's equity.

The example is artificial but it does serve to indicate that the unconverted comparative income statement will lead to misunderstanding, and the figures may be even more misleading where a considerable number of years are under review. It also brings out the fact that the unconverted income statement for a particular year may be unreliable as a presentation of the actual earnings of the period computed in uniform dollars.

The true effects of such a procedure on the comparative income statement can be seen by referring to the following comparative income statement of the New York Telephone Company.[1] In Exhibit A, the dollars have been adjusted and are equivalent to December, 1951, dollars. Exhibit D shows the same comparative data in conventional form.

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[1]Ralph Coughenour Jones, Price Level Changes and Financial Statements, Case Studies of Four Companies. American Accounting Association, 1955. pp. 53 and 56.

Exhibit A
New York Telephone Company
Adjusted Comparative Income Statement
(In Millions-Dec. 1951 Dollar = $1.00)

| | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 |
|---|---|---|---|---|---|---|---|
| Operating revenues | 452.2 | 421.1 | 442.5 | 490.5 | 546.0 | 563.5 | 609.0 |
| Operating expenses | 283.7 | 281.1 | 308.4 | 336.9 | 350.1 | 345.4 | 371.0 |
| Depreciation expense | 47.3 | 50.2 | 55.7 | 66.0 | 64.0 | 66.9 | 69.8 |
| Expenses charged construction- | (3.7) | (4.1) | (4.6) | (4.6) | (5.2) | (5.5) | (5.8) |
| Total operating expenses | 327.3 | 327.2 | 359.5 | 398.3 | 408.9 | 406.8 | 435.0 |
| Net operating revenues | 124.9 | 93.9 | 83.0 | 92.2 | 137.1 | 156.7 | 174.0 |
| Federal taxes on income | 30.0 | 20.6 | 15.7 | 15.4 | 32.1 | 50.1 | 58.8 |
| Other operating taxes | 46.1 | 43.3 | 42.9 | 51.6 | 60.0 | 62.2 | 64.5 |
| Total operating taxes | 76.1 | 63.9 | 58.6 | 67.0 | 92.1 | 112.3 | 123.3 |
| Net operating income | 48.8 | 30.0 | 24.4 | 25.2 | 45.0 | 44.4 | 50.7 |
| Dividend income | 2.0 | 1.7 | 1.3 | 2.1 | 2.4 | 1.1 | 1.1 |
| Interest charged construction- | .4 | 2.3 | 2.2 | 2.0 | 1.2 | 1.2 | 1.5 |
| Miscellaneous deductions from income | (3.1) | (2.6) | (2.5) | (2.6) | (2.5) | (2.2) | (2.3) |
| Net income available for fixed charges | 48.1 | 31.4 | 25.4 | 26.7 | 46.1 | 44.5 | 51.0 |
| Interest charges | 4.2 | 5.9 | 10.6 | 12.9 | 12.6 | 11.8 | 12.1 |
| Net income | $ 43.9 | $ 25.5 | $ 14.8 | $ 13.8 | $ 33.5 | $ 32.7 | $ 38.9 |

Exhibit D
New York Telephone Company
Comparative Income Statement
(In Millions-as Reported)

| | 1946 | 1947 | 1948 | 1949 | 1950 | 1951 | 1952 |
|---|---|---|---|---|---|---|---|
| Operating revenues | 333.5 | 355.4 | 402.3 | 441.5 | 496.4 | 553.0 | 611.4 |
| Operating expenses | 208.6 | 236.0 | 278.6 | 301.8 | 316.1 | 336.0 | 396.6 |
| Depreciation expense | 28.3 | 30.6 | 35.7 | 44.5 | 44.4 | 47.7 | 51.3 |
| Expenses charged construction | (2.7) | (3.5) | (4.2) | (4.1) | (4.7) | (5.4) | (5.8) |
| Total operating expenses | 234.2 | 263.1 | 310.1 | 342.2 | 355.8 | 378.3 | 415.1 |
| Net operating revenues | 99.3 | 92.3 | 92.2 | 99.3 | 140.6 | 174.7 | 196.3 |
| Federal taxes on income | 22.1 | 17.4 | 14.3 | 13.9 | 29.3 | 49.2 | 59.0 |
| Other operating taxes | 34.0 | 36.5 | 39.0 | 46.4 | 54.4 | 61.0 | 64.8 |
| Total operating taxes | 56.1 | 53.9 | 53.3 | 60.3 | 83.1 | 110.2 | 123.8 |
| Net operating income | 43.2 | 38.4 | 38.9 | 39.0 | 56.9 | 64.5 | 72.5 |
| Dividend income | 1.5 | 1.4 | 1.2 | 1.9 | 2.2 | 1.1 | 1.1 |
| Interest charged construction | .3 | 1.9 | 2.0 | 1.8 | 1.1 | 1.2 | 1.5 |
| Miscellaneous deductions from income | (2.3) | (2.2) | (2.3) | (2.3) | (2.3) | (2.2) | (2.3) |
| Net income available for fixed charges | 42.7 | 39.5 | 39.8 | 40.4 | 57.9 | 64.6 | 72.8 |
| Interest charges | 3.1 | 5.0 | 9.6 | 11.6 | 11.4 | 11.6 | 12.1 |
| Net income | $ 39.6 | $ 34.5 | $ 30.2 | $ 28.8 | $ 46.5 | $ 53.0 | $ 60.7 |

Conversion of the Balance Sheet

The following comparative balance sheet of X company will be used as an example of adjustment to uniform dollars.

X Company
Comparative Balance Sheet
Years ending December 31
(In unconverted book figure)

| | First year | Second year |
|---|---|---|
| Assets | | |
| Cash | $ 60,000 | $ 70,000 |
| Accounts Receivable | 40,000 | 60,000 |
| Merchandise Inventory | 100,000 | 120,000 |
| Land | 20,000 | 20,000 |
| Building | 100,000 | 100,000 |
| Allowance for Depreciation-Building | 30,000* | 40,000* |
| Equipment | 110,000 | 110,000 |
| Allowance for Depreciation-Equipment | 45,000* | 60,000* |
| *Credit | | |
| | $355,000 | $380,000 |
| Liabilities and Equities | | |
| Accounts Payable | $ 55,000 | $ 65,000 |
| Bonds Payable | 80,000 | 80,000 |
| Capital Stock | 200,000 | 200,000 |
| Retained Earnings | 20,000 | 35,000 |
| | $355,000 | $380,000 |

Following are supplementary data and assumptions:

(1) The index of prices at the end of first year (and beginning of second) was 100; at the end of second year the index stands at 110.
(2) The land, building, equipment, and capital items all originated when the index stood at 80.
(3) It will be assumed that the first-in, first-out method of inventory pricing has been used. The merchandise on hand at the end of first year was acquired when the index was 110.
(4) It is assumed that retained earnings of $7,000 were earned during the year before the first year in the statement. The average index for that year was 90. Assume that each year's net

earnings accrued throughout the year and that dividend payments are in last-in, first-out order from the earnings, and dividends are paid in year-end dollars. The average index for the first year was 95, for the second year 105.
(5) All calculations are rounded off to the nearest $100.

The calculations are as follows:

Cash and Accounts Receivable--The balances of cash and receivables at the end of the second year require no adjustment since they automatically are expressed in the dollar of that date. The balances at the end of the first year must be restated in order to make them comparable with the second year-end balances, since the purchasing power of the dollar has declined during the year.

The calculations are:

| | |
|---|---|
| Cash | $60,000 x 110/100 = $66,000 |
| Accounts Receivable | 40,000 x 110/100 = $44,000 |

Merchandise--The merchandise on hand st the end of the second year was purchased with year-end dollars, so it needs no adjustment. However, the merchandise at the end of first year should be converted to the second year-end dollars.
$100,000 x 110/100 = $110,000.

Land, Building, and Equipment--These were acquired when the index of prices stood at 80. The calculations are as follows:

| | |
|---|---|
| Land | $20,000 x 110/80 = $27,500 |
| Building | $100,000 x 110/80 = $137,500 |
| Equipment | $110,000 x 110/80 = $151,300 |
| Allowance for Depreciation--Building | |
| First year | $30,000 x 110/80 = $41,300 |
| Second year | $40,000 x 110/80 = $55,000 |
| Allowance for Depreciation--Equipment | |
| First year | $45,000 x 110/80 = $61,900 |
| Second year | $60,000 x 110/80 = $82,500 |

Accounts payable--As in the case of accounts receivable,

the balance of accounts payable at the end of the second year is expressed in current dollars and requires no adjustment. The balance at the end of the first year, however, must be restated in the second year-end dollars. $55,000 x 110/100 = $60,500.

Bonds Payable--Like other "monetary" items, the $80,000 of bonds are payable in $80,000, regardless of the fluctuations in their purchasing power. Therefore, at the end of second year the liability may regarded as already shown in year-end dollars but the amount of such liability a year ago must be translated into second year-end dollars for the purpose of comparison. $80,000 x 110/100 = $88,000.

Capital Stock--The amount in the capital stock account represents the capital contributed to the business when the price index was 80. The $200,000 paid in at that time is the equivalent of $275,000 expressed in current dollars. $200,000 x 110/80 = $275,000.

Retained Earnings--Assuming that the $7,000 was earned when the price index stood at 90, and that the dividends were paid in the last-in, first-out order, the calculation are:

| | |
|---|---|
| First year | |
| | $7,000 x 110/90 = $8,600 |
| Net income for the year | $28,000 x 110/95=$32,400 |
| Dividends paid | 15,000 x 110/100=16,500 |
| Balance to the Retained Earnings | $15,900 |

The total is $8,600 + $15,900 = $24,500.

Second year

| | | |
|---|---|---|
| Net income for the year | $38,500 x 110/105= | $40,300 |
| Dividends paid | | 23,500 |
| Balance to Retained Earnings | | $16,800 |

The total is $24,500 + $16,800 = $41,300

From above computations, the reported comparative data can be converted as follows:

X Company
Comparative Balance Sheet
Years ending December 31
(Stated in uniform dollars, the end of second year used as a base)

| Assets | First year | Second year |
|---|---|---|
| Cash | $ 66,000 | $ 70,000 |
| Accounts receivable | 44,000 | 60,000 |
| Merchandise inventory | 110,000 | 120,000 |
| Land | 27,500 | 27,500 |
| Building | 137,500 | 137,500 |
| Allowance for depreciation-Building | 41,300* | 55,000* |
| Equipment | 151,300 | 151,300 |
| Allowance for depreciation-Equipment | 61,900* | 82,500* |
| | $433,100 | $428,800 |

*Credit

| Liabilities and Equities | | |
|---|---|---|
| Accounts payable | $ 60,500 | $ 65,000 |
| Bonds payable | 88,000 | 80,000 |
| Capital stock | 275,000 | 275,000 |
| Retained earnings | 24,500 | 41,300 |
| Stockholders' equity conversion-adjustment | 14,900* | 32,500* |
| | $433,100 | $428,800 |

*Debit

The converted comparative balance sheet not only indicates the comparison in terms of uniform dollars, but it also brings out the fact that there has been an erosion of the stock equity in both years. The apparent accumulation

of earnings, in other words, has done little more than offset the shrinkage in capital. Most companies in America today have retained earnings on the books which are actually nothing more than a replacement of the capital which has been eaten away by the impact of inflation.

## CONCLUSION

The effect of price level changes on financial statements has been significant during the past twenty years. There is a need to develop one reasonable method for the purpose of reporting the real income and financial condition of the company. A corrected statement of net income would aid management in problems concerning expansion and retirement. Owners would have a better understanding of their investment and possibly could be convinced that not all income can be distributed in the form of dividends.

Until now, any attempt to measure the impact of price level changes on financial statements has been only an approximation. No result derived from a process of measurement may be presumed to be exact. There is no best method to reflect current prices in the financial statements, and no general agreement to be reached on a resolution of the problem in the United States. There is a need for extensive research and experimentation with various techniques for reflecting price changes.

The American Accounting Association has a conclusion

on the problem of price level changes. The conclusion is:

> In accounting, different purposes may require different types of reports. The traditional balance sheet and income statement, employing historical dollar costs, have proved their usefulness and are of primary importance for many purposes. Reports prepared to reflect fluctuations in the value of the dollar may prove to have substantial usefulness for other purposes.
>
> It is the judgment of the Committee, therefore, that the time has come to give adjusted dollar statements a thorough test. Such statements should now be, and may continue to be, supplementary to the financial statements based on historical dollar cost. During the period of development (or of experimentation, whichever it may prove to be), such statements need not be covered by the independent accountant's opinion although he might assist in their preparation. A number of such experiments by different corporations in different types of business will undoubtedly be required. Only by means of such experimentation can methodology be tested and usefulness proved or disproved.[1]

Changing the conventional financial statements, however, is a task of great magnitude which requires the cooperative efforts of the accounting profession, business enterprises, and governmental bodies. The preparation of supplementary statements in dollars of approximately uniform purchasing power, on the other hand, is by comparison a simple task. If the supplementary adjusted statements are made available, then the nature and extent of the need for modifying the conventional methods and statements can be more accurately judged. Any such change, however, will necessarily be evolutionary. It cannot come suddenly by the mere substitution of one basis of computation for another.

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[1] American Accounting Association, "Price Level Changes and Financial Statements," The Accounting Review, October, 1951, p. 473.

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# THE IMPACT OF PRICE LEVEL CHANGES ON FINANCIAL STATEMENTS

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AN ABSTRACT OF A MASTER'S REPORT

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The dollar is the unit of measurement used in accounting to record, report, and interpret the financial affairs of business corporations and other entities. However, through the past twenty years the movement of the price level has been generally upward, and as a result the purchasing power of the dollar has decreased substantially. This condition poses a major problem for the accounting profession.

The effects of price level changes on the financial statements have become obvious. The net income of many business corporations is overstated in terms of uniform dollars. Such overstatement results from the fact that although revenues are stated in the current years dollar some of the deductions are expressed in dollars of earlier years--dollars have substantially greater purchasing power than the current monetary unit. The most significant item is depreciation cost, because most fixed assets were purchased with dollars having greater purchasing power than the current dollars. One result of the overstatement of net income is that income taxes are much higher than the statutory rate, and dividends are probably being paid partly out of capital. Under these conditions, the invested capital of stockholders is not being maintained. Other effects of price level changes are losses from holding current monetary assets and long-term investments, and gains on current and long-term liabilities. The financial statements will not fairly represent financial condition and the results of operations under the conventional accounting method.

In dealing with the problem of price level changes, it is suggested that financial statements be adjusted by the application of a general price index, so that the financial statements can be stated in terms of a uniform unit of measurement. Such statements are not expected to be substitutes for the conventional balance sheet and income statement, but are presented as supplementary statements.